

ON CHILOPODS OF THE FAMILY MECISTOCEPHALIDÆ.

BY RALPH V. CHAMBERLIN,
Cambridge, Mass.

While some confusion still exists in the application of the generic name *Mecistocephalus* Newport and consequently of the family name *Mecistocephalidæ*, under the rules of the International Code the problem is a simple one, and *punctifrons* Newport is clearly the type of the genus. *Lamnonyx* thus falls as a synonym to *Mecistocephalus*. In the present paper *Mecistocephalus* is regarded as thus unalterably fixed, and the family *Mecistocephalidæ* is treated broadly as including all *mecistocephaloid* forms

KEY TO GENERA OF THE MECISTOPHALIDÆ.

- a. Coxosterna of second maxillæ discrete, not fused at middle line; palpi of second maxillæ clawless. (Arrupinæ).
 b. Coxæ of first maxillæ discrete. Arrup Chamberlin.
 bb. Coxæ of first maxillæ fused *Prolamnonyx* Silvestri.
- aa. Coxosterna of second maxillæ united at middle line; palpi of second maxillæ with claws..... (Mecistocephalinæ).
 b. Cephalic plate with a stout spine beneath near each anterolateral corner; clypeal region divided by a distinctly areolate median longitudinal band extending from anterior areolate area; clypeal setæ few.
 c. Coxopleuræ of last pediferous segment very large, extending to or beyond the spiracle of the preceding segment..... *Megethmus* Cook.
 cc. Coxopleuræ of last pediferous segment of normal size, not embracing the preceding segment.
 d. Laminae of mandibles, excepting the first, with teeth confined to distal region proximad of where they are replaced by a close line of cilia.
 Lateral pieces of labrum with margin ciliate throughout *Dasyptyx* Chamberlin.
 dd. Laminae of mandibles with teeth throughout, no such ciliate lines.
 e. Labral margins shortly ciliate throughout; teeth of mandibular laminae, except distally, exceedingly minute..... *Brachyptyx*, gen. nov.*
 ee. Labral margins either wholly smooth or setose or ciliate only for a very short distance subjacent to median angles; proximal teeth of mandibular laminae not at all or only moderately and gradually reduced.
 f. Labral margins wholly smooth; teeth of first lamina of mandibles seven or less..... *Mecistocephalus* Newport.
 ff. Labral free margins with a few setæ or a short line of cilia at mesal ends subjacent to median piece; teeth of first mandibular lamina ten or more, the mesal edge of mandible serrate *Pauroptyx*, gen. nov.

*Genotype, *Mecistocephalus mirandus* Pocock (*Lamnonyx mirandus* Silvestri).

- bb. Cephalic plate with no such teeth beneath; clypeal region not divided by a median areolate band, its setæ usually very numerous.
- c. Free margins of lateral pieces of labrum ciliate throughout; preclypeal setæ very numerous; channel from salivary pore in coxosternum extending caudad to or near the posterior angles *Dicelophilus* Cook.
- cc. Labral margins wholly smooth; preclypeal and clypeal setæ very few; channel from salivary pore in coxosternum on each side extending laterad to margin well cephalad of posterior angles as in *Mecistocephalus*, etc. = *Tygarrup* Chamberlin.

Below is given a list of the known species of *Mecistocephalidæ*, with localities for each. In this list the numerals in parentheses with page numbers following each name refer to the literature at the end of the present paper in which the original descriptions were published.

A LIST OF THE MECISTOCEPHALIDÆ.

Mecistocephalus Newport.

- M. angusticeps* (Ribaut), (24), p. 23. Africa.
- M. angustior* Chamberlin, (9). Society Is.
- M. castaneiceps* Haase, (12), p. 102. Pulo Edam Is.
- M. cephalotes* Meinert, (18), p. 100. Java; India, etc.
- M. cephalotes multispinata* (Silvestri), (27), p. 61. India.
- M. cephalotes subinsularis* (Silvestri), (27), p. 61. Ceylon; Sumatra; Meruei; Tonkin.
- M. curvidens* Haase, (12), p. 104. Philippines (Bohol).
- M. cyclops* Brölemann, (4), p. 528. Seychelles.
- M. diversidens* (Silvestri), (27), p. 76. India.
- M. diversisternus* (Silvestri), (27), p. 81. Japan.
- M. erythroceps* Chamberlin (9). Fiji Is.
- M. guildingii* Newport, (21), p. 179. = *M. maxillaris* (Gervais).
- M. gulliveri* Butler, (3), p. 446. = *M. maxillaris* (Gervais).
- M. hamidens* Haase, (12), p. 1, 6, legend and fig. = *M. curvidens* Haase.
- M. heros* Meinert, (19), p. 214. = *M. insularis* (Lucas).
- M. heteropus* Humbert, (13), p. 19. Ceylon.
- M. insularis* (Lucas), (17), Annex N. Africa; India; Seychelles, etc.
- M. insularis orientalis* (Silvestri), (26), p. 59. India; Sumatra; Andamans
- M. japonicus* Meinert, (20), p. 142. Japan.
- M. kurandanus* Chamberlin, (9). Australia.
- M. leonensis* (Cook), (10), p. 79. = *M. maxillaris* (Gervais).
- M. lifuensis* Pocock, (24), p. 63. Loyalty Is.
- M. maxillaris* (Gervais), (11), p. 52. Tropicopolitan.
- M. meinerti* Seliwanoff, (26). Central Asia (Taschkent).
- M. mimeticus* Chamberlin, (9). Solomon Is.
- M. modestus* (Silvestri), (27), p. 68. New Guinea.
- M. nannocornis*, sp. nov. Phillipines.
- M. nigriceps* Chamberlin, (9). Fiji Is.; Solomon Is.

M. parvus Chamberlin,¹ (8), p. 85. Galapagos Is.

M. punctifrons Newport, (21), p. 179. India.

M. punctifrons glabridorsalis Attems, (1), p. 138. = *M. insularis* (Lucas).

M. rubriceps Wood, (30), p. 42. Japan; Bonin Is.; Philippines; Formosa.

M. simplex Chamberlin, (9). Australia.

M. smithi Pocock, (23), p. 351. China; Formosa.

M. spissus Wood, (30), p. 43. Hawaiian Is.

M. sulcicollis Tömö.övary, (28), p. 162. Borneo.

M. tahitiensis Wood, (30), p. 43. Society Is.; Australia; New Guinea; Fiji Is.

M. tenuiculus (L. Koch), (16), p. 794. = *M. rubriceps* Wood.

M. togensis (Cook), (10), p. 39. = *M. insularis* (Lucas).

Megethmus Cook.

M. ferrugineus (Hutton), (14), p. 115. New Zealand.

M. huttoni (Pocock), (22), p. 223. = *M. ferrugineus* (Hutton).

M. microporus (Haase), (12), p. 106. Philippines (Luzon).

M. pluripes, sp. nov. Philippines.

Pauroptyx, gen. nov.

P. himalayanus, sp. nov. India.

P. pallidus (Silvestri), (27), p. 65. India.

P. superior (Silvestri), (27), p. 63. India.

Brachyptyx, gen. nov.

B. mirandus (Pocock), (23), p. 352. Japan; Formosa; etc.

Dasyptyx, gen. nov.

D. gigas (Haase), (12), p. 105. New Guinea.

D. solomonensis Chamberlin, (9). Solomon Is.

D. subgigas (Silvestri), (27), p. 70. New Guinea.

D. uncifer (Silvestri), (27), p. 72. New Guinea.

Dicellyphius Cook.

D. anomalus (Chamberlin), (5), p. 665. Western United States.

D. apfe'becki (Verhoeff), (29), p. 348. = *D. carniolensis* (C. Koch).

D. apfelbecki diversiporus (Verhoeff), (27), p. 348. = *D. carniolensis* (C. Koch).

D. breviceps (Meinert), (19), p. 214. = *D. limatus* (Wood).²

D. carniolensis (C. Koch), (15), p. 185. Europe.

D. limatus (Wood), (30), p. 42. Western United States.

Tygarrup Chamberlin.

T. intermedius Chamberlin, (7), p. 212. British Guiana.³

1 Dr. Silvestri thinks this the same as *M. maxillaris*, but in this he is in error. As a matter of fact the two species are widely separated. Aside from differences in mouthparts, *parvus* may at once be distinguished from *maxillaris* in having the sternal impressions simple, not at all anteriorly furcate. It is a much smaller species with fuscous head and prehensors.

2 The type of *M. breviceps* Meinert is in the Mus. Comp. Zool. at Cambridge. In the old insect catalogue (No. 310), it is noted as collected on Nantucket in Aug., 1853. This record, however, is probably erroneous. Both the type and the paratype, which is without locality label, agree fully with specimens of *D. limatus* (Wood) from California.

3 Taken at Washington, D. C., in pots of plants at quarantine from British Guiana.

Prolamnonyx Silvestri.

P. holstii (Pocock), (23), p. 352. Japan; China.

P. indecorus (Attems), (2), p. 287. = **P. holstii** (Pocock)

P. santeri Silvestri, (27), p. 87. Formosa.

Arrup Chamberlin.

A. pylorus Chambelin, (6), p. 654. California.

DESCRIPTION OF NEW FORMS.

Mecistocephalus nannocornis, sp. nov.

Dusky brown, the head darker, more blackish.

Head coarsely deeply punctate; exceptionally short in proportion to width, being only 1.4 times longer than wide; frontal suture very distinct as in most species, the suture bowed forward at its middle. Tooth on ventral side of anterior corner much reduced. Antennæ very short, scarcely reaching to end of first tergite.

Tergites uneven, roughened; sulci in middle and posterior regions very strongly impressed.

Prosternum proportionately short and wide, rather finely punctate; anterior margin with two low, rounded teeth. Prehensors with femuroid bearing a single tooth at distal end; second and third joints also armed; claw with tooth low and slight, almost obsolete. Sternites with a deep median longitudinal sulcus not bifurcate at its anterior end.

Last ventral plate strongly narrowed caudad, the caudal margin straight. Coxopleuræ with pores of moderate size, not crowded, about thirty on each side.

Last dorsal plate broad and shield-shaped.

Pairs of legs only forty-five.

Locality.—P. I.; Mt. Makiling. (C. F. Baker).

Type.—M. C. Z., No. 2006.

Like *spissus* Wood, occurring in the Hawaiian Is., in the number of pairs of legs; but readily distinguished by its proportionately much shorter head, etc.

Megethmus pluripes, sp. nov.

This species may be distinguished from *microporus* in the smaller coxopleuræ of the last segment which enroach upon the penult segment only as far as the spiracle, not reaching the anterior end; pores similarly very numerous and fine. Pairs of legs ninety-seven instead of one hundred and one.

General colour fulvous; head and prehensors red or light chestnut.

Head very long and narrow, being just twice as long as the greatest width. Paired sulci close together, parallel, distinct for a short distance in front of caudal margin, then becoming vague. Antennæ long; joints all long. Mandible with nine dentate plates of which the first has but three teeth and a median one near twenty of which the more proximal are more widely spaced. Median piece of labrum cuneate; lateral pieces with margin wholly smooth, mesal tooth but vaguely indicated.

Basal plate with a sharply impressed median longitudinal sulcus. Prosternum sparsely punctate; unarmed anteriorly. Femuroid of prehensors each with two stout black teeth on mesal side of which the distal one is much the larger; teeth of second and third joints black, rounded; tooth of claw very low, indistinct.

Sternites each with a deep, Y-shaped impression, the branches widely diverging, at or caudad of the middle, the angle very obtuse, the ends transverse.

Dorsal plates bisulcate from the first caudad.

Length, 75 mm.

Type—M. C. Z. 1,917; paratypes M. C. Z. 1,918. Philippines: Mr. Banahao, C. F. Baker.

Pauroptyx, gen. nov.

In this genus there is a short series of setæ or cilia on or projecting from beneath the free edge of each lateral piece of the labrum at its mesal end. The mesocaudal angle of each lateral piece of the labrum is typically more strongly produced than in *Mecistocephalus*. The first lamina of the mandible has from ten to sixteen teeth in the known species, the series of teeth being continued proximally by a series of characteristic serrations along the mesal edge of the mandible.

Genotype.—*P. himalayanus*, sp. nov.

The known species are all from India.

Pauroptyx himalayanus, sp. nov.

The median piece of the labrum in this species projects caudad beyond the edge of the main part of each lateral piece; each lateral piece adjacent to the median piece produced caudad into a long acute tooth somewhat like but proportionately much longer than the corresponding processes of *P. superior* and *P. pallidus*. Labrum with setæ showing at mesal end at a near angle formed by mesal process and main part of plate, these in part, at least, merely stiff hairs projecting from beneath (i. e., from dorsal surface) the edge and similar to the other hairs clothing the dorsal surface. Mandibles with nine pectinate lamellæ of which the first is ten-toothed; the inner margin below these teeth conspicuously serrate. A median lamella has about thirty-eight teeth which decrease from the distal end proximad in the usual way. Head 1.9 times, or slightly less, longer than wide. Anal legs more than twice as long as the penult. Last sternite large, more strongly narrowed caudad than in *pallidus* but similarly constricted in front of caudal end; broader in male, the caudal lobe more abruptly set off.

Colour uniform fulvous to light brown, the legs concolorous. Head and prehensorial segment abruptly darker, chestnut to mahogany. Antennæ fulvous.

Length to 60 mm.; width of first plate, 1.8 mm.

Pairs of legs, forty-nine.

Type.—M. C. Z. 899; paratypes, 897, 900, 898. India; Himalayas; Koolloo; near Amballa.

Literature Cited.

1. Attems, C. Dr. Brauer's Myr.-Ausbeute auf den Seychellen. Zool. Jahrb., 1900, 13, p. 39.
2. Attems, C. Myriopoda in Zichy's Dritte Asiatische Forschungsreise, 1901, 2.
3. Butler, A. G. Preliminary Notice of New Species of Arachnida and Myriopoda from Rodriguez. Ann. Mag. Nat. Hist., 1876, (4), 17.
4. Brölemann, H. Myriapodes in Mission Scient. de M. Ch. Alluaud aux îles Séchelles. Mem. Soc. Zool. France, 1895, 8.
5. Chamberlin, R. V. New Chilopods. Proc. Acad. Nat. Sci. Phil., 1904.

6. Chamberlin, R. V. The Chilopoda of California, III. Pomona Journal of Ent., 1912, 4.
7. Chamberlin, R. V. The Stanford Expedition to Brazil. The Chilopoda of Brazil. Bull. Mus. Comp. Zool., 1914, 58, No. 3.
8. Chamberlin, R. V. A Diplopod from the Galapagos Is., with Notes on the Chilopoda. Psyche, 1914, 21, No. 3.
9. Chamberlin, R. V. The Myriopoda of the Australian Region. Bull. Mus. Comp. Zool., 1920.
10. Cook, O. F. Geophiloidea from Liberia and Togo. Brandtia VIII, 1896
11. Gervais, P. Études pour servir à la histoire naturelle de Myriapodes. Ann. Sci. Nat., 1837, (2), 7.
12. Haase, E. Die Indisch-Australischen Myriopoden. I. Chilopoden. Abh. u. Ber. d. K. Zool. u. anthrop.-ethnogr. Mus., Dresden, 1886, 1, No. 5.
13. Humbert, A. Essai sur les Myriapodes de Ceylan. Mém. soc. d. Phys. et Hist. Nat. Genève, 1865, 18.
14. Hutton, F. W. Descriptions of new species of New Zealand Myriopoda. Ann. Mag. Nat. Hist., 1877, (4), 20.
15. Hech, C. L. System der Myriopoden, 1847.
16. Kech, L. Japanesische Arachniden u. Myriopoden. Verh. z.-b. Ges. Wien, 1878, 27.
17. Lucas, H. Myriapodes, in Maillard's Note sur l'île de la Reunion, ed. 2, 1863.
18. Meinert, F. Myriapoda Mus. Hauniensis, I. Geophili. Naturh. Tidsskr., 1871, (3), 7.
19. Meinert, F. Myriapoda Mus. Cantabrigensis, Mass. I. Chilopoda. Proc. Am. Phil. Soc., 1885, 23.
20. Meinert, F. Myriapoda Mus. Hauniensis, III. Chilopoda. Vidensk. Meddel. fra den Naturh. Foren i Kjøbenhavn, 1886.
21. Newport, G. On some new Genera of the Class Myriapoda. Proc. Zool. Soc. London, 1842, 10.
22. Pocock, R. I. Descriptions of some new Geophilidæ in the Collections of the British Museum. Ann. Mag. Nat. Hist., 1891, (6), 8.
23. Pocock, R. I. Report upon the Chilopoda and Diplopoda obtained by P. W. Bassett Smith and J. J. Walker during the cruise in the Chinese Seas of H. M. S. "Penguin," etc. Ann. Mag. Nat. Hist., 1895, (6), 15.
24. Pocock, R. I. Myriapoda, in Willey's Zool. Results, pt. I, 1898.
25. Ribaut, H. Myriapodes I. Chilopoda in Voyage de Ch. Alluaud et R. Jeannel in Afrique Orientale, Résult. Scientifiques, 1914.
26. Seliwanoff. Geophilidæ museja imp. Ak. nauk. Zapiski imp. Akad. nauk. Ft. petersburg, 1881.
27. Silvestri, F. Contributions to a knowledge of the Chilopoda Geophilomorpha of India. Records of the Indian Museum, 1919, 16, pt. 1, No. 5.
28. Tömösvary, Ö. A Myriopaddk osztálydnak új alakja Borneo szigéteeröl. Termesz. füzetek., 1882, 5.
29. Verhoeff, K. Beitr. z. Kenntn. pal. Myriopoden, VI, Ueber Palaar. Geophiliden Archiv Naturges., 1898.
30. Wood, H. On the Chilopoda of North America with a Catalogue of all the Specimens in the Smithsonian Institution. Jour. Acad. Nat. Sci. Phil., 1863, (2), 5.